

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	Steve Dispensa	Confirmation No:	6255
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Title:	PERFORMANCE MANAGEMENT SYSTEM		

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**Commissioner for Patents**  
**P. O. Box 1450**  
**Alexandria, VA 22313-1450**

**SECOND AMENDED APPEAL BRIEF**

**Introductory Comments**

Pursuant to the provisions of 37 C.F.R. § 41.30 *et seq.*, the Applicant hereby appeals to the Board of Patent Appeals and Interferences (hereinafter “the Board”) from the claim rejections issued in the final Office action dated June 1, 2006 (hereinafter “the final Office action”). A notice of appeal was filed on July 21, 2006, in conjunction with a pre-appeal brief request for review.

**Real Party In Interest**

The entire interest in the present application has been assigned to Sprint Communications Company, L.P., as recorded at Reel 012742, Frame 0864.

**Related Appeals and Interferences**

There are no prior or pending related appeals or interferences.

### **Status of Claims**

Claims 1-11, 13-41, 43-70 and 72-175 are pending in the application.

Claims 12, 42 and 71 are canceled.

Claims 1-11, 13-41, 43-70 and 72-175 have been finally rejected.

Claims 1-11, 13-41, 43-70 and 72-175 are being appealed.

### **Status of Amendments**

No amendments have been filed subsequent to the final rejections.

### **Summary of Claimed Subject Matter**

Independent claim 1 presents a method for providing performance information of a communication network. (See, for example, Fig. 25; and page 44, lines 11-20.) The method includes generating and transmitting in a performance management system a graphical overview of the communication network to a user system. (See Fig. 31; and page 47, lines 1-4, for an example of the national graphical overview of active communication market sites provided to the user.) An instruction to request the performance information for a selected region of the communication network is received into the performance management system from the user system. (Figs. 31 and 32; and page 47, lines 4-30, wherein a user clicks on a market site and on one of several links to request different types of performance information for that site. See also Fig. 25, step 2502, and page 44, lines 12-14.) The instruction is processed in the performance management system to determine the performance information. (Fig. 25, step 2504; and page 44, lines 14-16.) Examples of the performance information include modem status statistics, forward error correction statistics, signal-to-noise ratios, load statistics, channel statistics, and Internet Protocol (IP) and File Transfer Protocol (FTP) statistics. (See Fig. 27 and Figs. 33-48; and page 47, line 15, to page 53, line 24.) A graphical format of the performance information is generated in the performance management system. (Fig. 25, step 2506; and page 44, lines 17 and 18.) The graphical format of the performance

information is stored in a repository. (Fig. 28, step 2812; and page 45, lines 25-28, referring to the storage of performance information in HTML format in an HTML fragment repository. See also Fig. 30, step 3012; and page 46, lines 28 and 29.) The graphical format of the performance information is also transmitted from the performance management system to the user system. (Fig. 25, step 2508; and page 44, lines 18-20.)

Independent claim 31 sets forth a software product for providing performance information of a communication network. The product includes a software storage medium to store performance management system software. The performance management system software, in turn, is executable by a processor to perform a method for providing performance information of a communication network, as similarly described in claim 1. (See, for example, Fig. 25; and page 44, lines 11-20.) The method includes generating and transmitting a graphical overview of the communication network to a user system. (See Fig. 31; and page 47, lines 1-4, for an example of the national graphical overview of active communication market sites provided to the user.) An instruction to request the performance information for a selected region of the communication network is received from the user system. (Figs. 31 and 32; and page 47, lines 4-30, wherein a user clicks on a market site and on one of several links to request different types of performance information for that site. See also Fig. 25, step 2502, and page 44, lines 12-14.) The instruction is processed to determine the performance information. (Fig. 25, step 2504; and page 44, lines 14-16.) Examples of the performance information include modem status statistics, forward error correction statistics, signal-to-noise ratios, load statistics, channel statistics, and Internet Protocol (IP) and File Transfer Protocol (FTP) statistics. (See Fig. 27 and Figs. 33-48; and page 47, line 15, to page 53, line 24.) A graphical format of the performance information is generated. (Fig. 25, step 2506; and page 44, lines 17 and 18.) The graphical format of the performance information is stored in a repository. (Fig. 28, step 2812; and page 45, lines 25-28, referring to the storage of performance information in HTML format in an HTML fragment repository. See also Fig. 30, step 3012; and page 46, lines 28 and 29.) The graphical format of the performance information is also transmitted to the user system. (Fig. 25, step 2508; and page 44, lines 18-20.)

Independent claim 61 describes a performance management system for providing

performance information of a communication network. The performance management system includes a reporting system and a database system. (Examples include a national performance management system 230 of Fig. 2, including a national database system 235 and a national reporting system 240; a regional performance management system 330 of Fig. 3, containing a regional database system 335 and a regional reporting system 340; and a market performance management system 430 of Fig. 4, including a market database system 435 and a market reporting system 440.) Generally, the reporting system is configured to report the performance information, while the database system is configured to store the information. (See, for example, page 16, lines 16-22; page 17, lines 21-28; and page 19, lines 7-14.) More specifically, the reporting system is configured to generate and transmit a graphical overview of the communication network to a user system. (See Fig. 31; and page 47, lines 1-4, for an example of the national graphical overview of active communication market sites provided to the user.) The reporting system is also configured to receive an instruction to request the performance information for a selected region of the communication network from the user system. (Figs. 31 and 32; and page 47, lines 4-30, wherein a user clicks on a market site and on one of several links to request different types of performance information for that site. See also Fig. 25, step 2502, and page 44, lines 12-14.) The reporting system is further configured to process the instruction to determine the performance information. (Fig. 25, step 2504; and page 44, lines 14-16.) In addition, the reporting system is configured to generate a graphical format of the performance information. (Fig. 25, step 2506; and page 44, lines 17 and 18.) The reporting system is also configured to transmit the graphical format of the performance information to the user system. (Fig. 25, step 2508; and page 44, lines 18-20.) The database system is configured to store both the performance information and the graphical format of the performance information. (Fig. 28, step 2812; and page 45, lines 25-28, referring to the storage of performance information in HTML format in an HTML fragment repository. See also Fig. 30, step 3012; and page 46, lines 28 and 29.)

Independent claim 90 presents another method for providing performance information of a communication network. Similar to claim 1, the method of claim 90 includes generating and transmitting in a performance management system a graphical

overview of the communication network to a user system. (See Fig. 31; and page 47, lines 1-4, for an example of the national graphical overview of active communication market sites provided to the user.) A first message for a region of the communication network is received from the user system into the performance management system. (Fig. 31; and page 47, lines 4-6, wherein a user clicks on a market site.) A list of types of the performance information for the requested region of the communication network is generated in the performance management system and transmitted to the user system. (Fig. 32; and page 47, lines 6-14, wherein a list of links to various pages holding different types of statistics is provided to the user.) An instruction to request the performance information is received into the performance management system from the user system. (Fig. 32; and page 47, lines 15-30, wherein a user clicks on one of the performance page links to request performance information. See also Fig. 25, step 2502, and page 44, lines 12-14.) The instruction is processed in the performance management system to determine the performance information. (Fig. 25, step 2504; and page 44, lines 14-16.) A graphical format of the performance information is generated in the performance management system. (Fig. 25, step 2506; and page 44, lines 17 and 18.) The graphical format of the performance information is stored in a repository. (Fig. 28, step 2812; and page 45, lines 25-28, referring to the storage of performance information in HTML format in an HTML fragment repository. See also Fig. 30, step 3012; and page 46, lines 28 and 29.)

Independent claim 119 sets forth a software product for providing performance information of a communication network. The product includes a software storage medium to store performance management system software. In this case, the performance management system software is executable by a processor to perform a method as similarly described in claim 90. This method includes generating and transmitting a graphical overview of the communication network to a user system. (See Fig. 31; and page 47, lines 1-4, for an example of the national graphical overview of active communication market sites provided to the user.) A first message for a region of the communication network is received from the user system. (Fig. 31; and page 47, lines 4-6, wherein a user clicks on a market site.) A list of types of the performance information for the requested region of the communication network is generated and

transmitted to the user system. (Fig. 32; and page 47, lines 6-14, wherein a list of links to various pages holding different types of statistics is provided to the user.) An instruction to request the performance information is received from the user system. (Fig. 32; and page 47, lines 15-30, wherein a user clicks on one of the performance page links to request performance information. See also Fig. 25, step 2502, and page 44, lines 12-14.) The instruction is processed to determine the performance information. (Fig. 25, step 2504; and page 44, lines 14-16.) A graphical format of the performance information is then generated. (Fig. 25, step 2506; and page 44, lines 17 and 18.) The graphical format of the performance information is stored in a repository. (Fig. 28, step 2812; and page 45, lines 25-28, referring to the storage of performance information in HTML format in an HTML fragment repository. See also Fig. 30, step 3012; and page 46, lines 28 and 29.)

Independent claim 148 describes a performance management system for providing performance information of a communication network. The performance management system includes a reporting system and a database system. The reporting system is configured to generate and transmit a graphical overview of the communication network to a user system. (See Fig. 31; and page 47, lines 1-4, for an example of the national graphical overview of active communication market sites provided to the user.) The reporting system is also configured to receive a first message for a region of the communication network from the user system. (Fig. 31; and page 47, lines 4-6, wherein a user clicks on a market site.) The reporting system is further configured to generate a list of types of the performance information for the requested region of the communication network and transmit the list to the user system. (Fig. 32; and page 47, lines 6-14, wherein a list of links to various pages holding different types of statistics is provided to the user.) The reporting system is also configured to receive an instruction to request the performance information from the user system. (Fig. 32; and page 47, lines 15-30, wherein a user clicks on one of the performance page links to request performance information. See also Fig. 25, step 2502, and page 44, lines 12-14.) The reporting system is then configured to process the instruction to determine the performance information. (Fig. 25, step 2504; and page 44, lines 14-16.) The reporting system is also configured to generate a graphical format of the performance information. (Fig. 25, step

2506; and page 44, lines 17 and 18.) The database system is configured to store the performance information and the graphical format of the performance information. (Fig. 28, step 2812; and page 45, lines 25-28, referring to the storage of performance information in HTML format in an HTML fragment repository. See also Fig. 30, step 3012; and page 46, lines 28 and 29.)

The independent claims discussed above allow a user, by way of a user system, to request performance information for a communication system and have a graphical format of the information generated. The graphical format is then saved in a repository, and may also be transmitted to the user system, thus providing the user with an easy-to-understand format of the information. Also, saving the graphical format of the information in a repository allows another request for the same information to be serviced directly by the saved graphical format from the repository, thus eliminating the need to regenerate the graphical format from the original performance information each time the same performance information is requested. (See page 45, lines 25-27.)

**Grounds of Rejection to Be Reviewed on Appeal**

1. Claims 1-11, 13-16, 18, 19, 27-41, 43-46, 48, 49, 57-70, 72-75, 77, 78, 86-104, 106, 107, 115-133, 135, 136, 144-161, 163, 164 and 172-175 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,571,285 to Groath et al. (hereinafter “Groath”) in view of U.S. Patent No. 5,751,933 to Dev et al. (hereinafter “Dev”).
2. Claims 17, 47, 76, 105, 134 and 162 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Groath, Dev and U.S. Patent No. 6,411,606 to Moura et al. (hereinafter “Moura”).
3. Claims 20, 50, 79, 108, 137 and 165 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Groath, Dev and U.S. Patent No. 5,519,830 to Opoczynski (hereinafter “Opoczynski”).
4. Claims 21-26, 51-56, 80-85, 109-114, 138-143 and 166-171 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Groath, Dev, Opoczynski and Moura.



## **Argument**

### **Outline**

- I. Rejection of Claims 1-11, 13-41, 43-70 and 72-175 Under 35 U.S.C. § 103(a)
  - a. Claims 1-11, 13-41, 43-70 and 72-175 Are Allowable Because Neither Groath Nor Dev Teach or Suggest Storing a Graphical Format of Performance Information in a Repository

**I. Rejection of Claims 1-11, 13-41, 43-70 and 72-175 Under 35 U.S.C. § 103(a)**

Claims 1-11, 13-16, 18, 19, 27-41, 43-46, 48, 49, 57-70, 72-75, 77, 78, 86-104, 106, 107, 115-133, 135, 136, 144-161, 163, 164 and 172-175 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Groath in view of Dev. (Page 2 of the final Office action.) This list includes all of the independent claims (i.e., claims 1, 31, 61, 90, 119 and 148). (Page 3 of the final Office action.) All remaining pending claims (i.e., claims 17, 20-26, 47, 50-56, 76, 79-85, 105, 108-114, 134, 137-143, 162 and 165-171) stand rejected under Groath and Dev in view of Moura, Opoczynski, or both. (Pages 7-11 of the final Office action.) The Applicant respectfully requests reversal of the rejections in light of the arguments presented below.

**a. Claims 1-11, 13-41, 43-70 and 72-175 Are Allowable Because Neither Groath nor Dev Teach or Suggest Storing a Graphical Format of Performance Information in a Repository**

Independent claim 1 sets forth a method for providing performance information of a communication network that includes, in part, “generating a graphical format of the performance information; and *storing the graphical format of the performance information in a repository....*” (Emphasis supplied.) Claims 31, 90 and 119 incorporate similar provisions. Further, claims 61 and 148 provide a performance management system having “a database system configured to store the performance information and *the graphical format of the performance information.*” (Emphasis supplied.) In some examples, storing the graphical format of the performance information allows faster presentation of the same graphical format to multiple users, as the graphical format need not be generated from the same performance information more than once.

The final Office action alleges that Groath discloses “a database system configured to store the performance information (col. 10, lines 15-24) and the graphical format of the performance information (col. 11, lines 43-62){Groath disclosed that the collected performance data is stored in the database and is then conveyed graphically to disclose the availability of the network, hence the performance data has to be stored in

some form of graphical format in the database (col. 10 on lines 21-24).” (Page 3 of the final Office action; emphasis in original.) The Applicant disagrees with the allegation.

Groath discloses “an architecture which is capable of monitoring a network for events and checking system functions and resources.” (Column 10, lines 2-6.) Also, “[r]eports on system performance, errors, etc. can be generated and output.” (Column 10, lines 9-10.) In addition, the *network status data* generated “is then stored in a database. *Thereafter, network availability is conveyed graphically.*” (Summary, column 2, lines 21-23; emphasis supplied.) More specifically, Fig. 16 indicates that *data* matching requested parameters for a report *are retrieved from a database* and then used to generate a graph. “A *database* is polled in operation 1602 for *data that matches the report parameters*. A graph is generated in operation 1604 from the data that matches the report parameters. In operation 1606, the generated graph is displayed to graphically represent the monitored elements, services, and processes of the network.” (Column 65, lines 29-34.) Thus, Groath does not teach or suggest *storing a graphical format of performance information*, as provided for in claims 1, 31, 61, 90, 119 and 148.

The final Office action points to column 10, lines 15-24, and column 11, lines 43-62, of Groath for support. (Page 3 of the final Office action.) However, the portion cited in column 10 specifically states that “[t]he data collected on the status of the network is manipulated and stored in a database. See operations 206 and 208. In operation 210, availability of the network is conveyed graphically.” (Column 10, lines 21-24.) In column 11, Groath indicates that “log files containing performance statistics gathered by a monitoring program can be transferred to a central server for processing by the Performance Data Manipulator [PDM]....” (Column 11, lines 47-50.) Thereafter, “[t]he PDM converts the log files from formats specific to a particular monitoring program into a common format. PDM then formats the file based on *data warehousing techniques* which include converting nodes and performance metrics to *key codes* which are stored in the database. The coded data file is *then bulk loaded into the database.*” (Column 11, lines 56-61; emphasis supplied.) At no point does Groath mention storing a graphical format of performance information to a database, as provided by claims 1, 31, 61, 90, 119 and 148 of the present application. In fact, Groath makes specific mention of storage of *key codes* by way of data warehousing techniques, which necessarily employ a numeric

format, and *not* a graphical format.

The final Office action asserts that “Groath disclosed that the collected performance data is stored in the database and is then conveyed graphically to disclose the availability of the network, *hence the performance data has to be stored in some form of graphical format in the database....*” (Page 3 of the Office action; emphasis supplied. See also the Response to Arguments, page 12 of the final Office action.) The Applicant respectfully contends that such an assertion is a clear error of fact. If data is converted into a graphical format, such a conversion may be performed before storage (as in claims 1, 31, 61, 90, 119 and 148 of the present application), or after storage (as in Groath). As mentioned above, in some embodiments of the present application, storing of the graphical information provides the advantage of using that same graphical information in future reports without having to perform the graphical conversion again. (See page 45, line 25, to page 46, line 10, of the present application.) Otherwise, the graphical information must be generated from performance information every time such graphical information is requested, as is done in Groath.

Similarly, Dev provides a network management system which “can poll or communicate with certain network entities and can infer the status of network connectors and other network entities for which polling is impossible or impractical.” (Abstract.) A user interface of the system provides information concerning the network to a user. (Column 12, lines 27 and 28.) For example, views showing performance information pertaining to a selected network device may be provided by way of the user interface. (Column 14, lines 54-67.) The system further includes “a database manager 16 which manages the storage and retrieval of disk-based data. Such data include configuration data, an event log, statistics, history and current state information.” (Column 3, lines 60-63.) However, Dev does not teach or suggest storing a *graphical format* of performance information, as provided for in the claims.

The final Office action also states “[i]n response to applicant’s arguments against the references individually one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references.” (Response to Arguments, page 11 of the final Office action.) However, at least one of the references cited in the final Office action in rejecting the independent claims (i.e., Groath or Dev)

must teach or suggest the limitation in question (i.e., storing a graphical format of performance data in a repository or database). As shown above, neither Groath nor Dev do so.

Thus, given the foregoing, the Applicant asserts that claims 1, 31, 61, 90, 119 and 148 are allowable in view of the combination of Groath and Dev, and such indication is respectfully requested.

Each of the currently-pending dependent claims 2-11, 13-30, 32-41, 43-60, 62-70, 72-89, 91-118, 120-147 and 149-175 depends from one of independent claims 1, 31, 61, 90, 119 and 148, thus incorporating the provisions of its associated independent claim. Thus, the Applicant asserts that claims 2-11, 13-30, 32-41, 43-60, 62-70, 72-89, 91-118, 120-147 and 149-175 are allowable for at least the reasons provided above in support of claims 1, 31, 61, 90, 119 and 148, and such indication is respectfully requested.

### **Conclusion**

In light of the foregoing remarks, the Applicant submits that the final rejections of claims 1-11, 13-41, 43-70 and 72-175 are erroneous, and respectfully requests their reversal.

The requisite fee for this appeal brief (37 C.F.R. §§ 41.37(a)(2) and 41.20(b)(2)) was previously submitted on December 13, 2006. The attendant notice of appeal and fee (37 C.F.R. §§ 41.61(a)(1) and 41.20(b)(1)) were filed previously in conjunction with a pre-appeal brief request for review filed July 21, 2006. The Applicant believes that no fees are due with respect to this filing. However, should the Office determine that additional fees are necessary, the Office is hereby authorized to charge Deposit Account No. 21-0765.

Respectfully submitted,

Date: 07/02/2007

/Kyle J. Way/

Kyle J. Way, Reg. No. 45,549  
Setter Roche LLP  
Telephone: (720) 562-2280  
E-mail: kyle@setterroche.com

**Correspondence address:**

**CUSTOMER NO.        28004**

Attn: Melissa A. Jobe  
Sprint Law Department  
6450 Sprint Parkway  
Mailstop: KSOPHN0312-3A461  
Overland Park, KS 66251

## **Claims Appendix**

The following is a list of claims involved in this appeal:

1. A method of providing performance information of a communication network, the method comprising:

in a performance management system, generating and transmitting a graphical overview of the communication network to a user system;

receiving an instruction to request the performance information for a selected region of the communication network into the performance management system from the user system;

in the performance management system, processing the instruction to determine the performance information;

in the performance management system, generating a graphical format of the performance information;

storing the graphical format of the performance information in a repository; and

transmitting the graphical format of the performance information from the performance management system to the user system.

2. The method of claim 1 wherein the graphical format is a web page.

3. The method of claim 1 wherein the graphical format is a report.

4. The method of claim 1 wherein the graphical format is a screen.

5. The method of claim 1 wherein processing the instruction to determine the performance information comprises retrieving the performance information.

6. The method of claim 5 wherein retrieving the performance information is from a probe device.

7. The method of claim 6 wherein retrieving the performance information from the probe device comprises:
  - generating and transmitting a message to request performance information from the probe device; and
  - receiving the performance information from the probe device.
8. The method of claim 5 wherein retrieving the performance information is from a memory in the performance management system.
9. The method of claim 1 wherein processing the instruction to determine the performance information comprises calculating the performance information.
10. The method of claim 1 further comprising monitoring the performance information in the communication network.
11. The method of claim 1 further comprising storing the performance information in memory of the performance management system.
12. (Canceled).
13. The method of claim 1 wherein the communication network uses wireless signals.
14. The method of claim 1 wherein the communication network uses broadband wireless signals.
15. The method of claim 1 wherein the performance information comprises a number of modems.
16. The method of claim 1 wherein the performance information comprises forward error correction information.



17. The method of claim 1 wherein the performance information comprises signal to noise ratio.
18. The method of claim 1 wherein the performance information comprises number of bytes.
19. The method of claim 1 wherein the performance information comprises speed of transmission.
20. The method of claim 1 wherein the performance information comprises channel information for a plurality of channels.
21. The method of claim 20 wherein the channels are upstream.
22. The method of claim 20 wherein the channels are downstream.
23. The method of claim 20 wherein the channel information comprises a state of one of the channels.
24. The method of claim 20 wherein the channel information comprises a change in a state of one of the channels.
25. The method of claim 20 wherein the channel information comprises a number of messages transmitted.
26. The method of claim 20 wherein the channel information comprises a time in a state of one of the channels.
27. The method of claim 1 wherein the instruction comprises a region of the communication network.

28. The method of claim 1 wherein the instruction comprises an Internet Protocol address.
29. The method of claim 1 wherein the instruction comprises a user identification.
30. The method of claim 1 wherein the instruction comprises a time or date.
31. A software product for providing performance information of a communication network, the software product comprising:  
performance management system software operational when executed by a processor to direct the processor to generate and transmit a graphical overview of the communication network to a user system, receive an instruction to request the performance information for a selected region of the communication network from the user system, process the instruction to determine the performance information, generate a graphical format of the performance information, store the graphical format of the performance information in a repository; and transmit the graphical format of the performance information to the user system; and  
a software storage medium operational to store the performance management system software.
32. The software product of claim 31 wherein the graphical format is a web page.
33. The software product of claim 31 wherein the graphical format is a report.
34. The software product of claim 31 wherein the graphical format is a screen.
35. The software product of claim 31 wherein the performance management system software is operational when executed by the processor to direct the processor to retrieve the performance information.

36. The software product of claim 35 wherein the performance management system software is operational when executed by the processor to direct the processor to retrieve the performance information from a probe device.

37. The software product of claim 36 wherein the performance management system software is operational when executed by the processor to direct the processor to generate and transmit a message to request performance information from the probe device and receive the performance information from the probe device.

38. The software product of claim 35 wherein the performance management system software is operational when executed by the processor to direct the processor to retrieve the performance information from a memory in the performance management system.

39. The software product of claim 31 wherein the performance management system software is operational when executed by the processor to direct the processor to calculate the performance information.

40. The software product of claim 31 wherein the performance management system software is operational when executed by the processor to direct the processor to monitor the performance information in the communication network.

41. The software product of claim 31 wherein the performance management system software is operational when executed by the processor to direct the processor to store the performance information in memory of the performance management system.

42. (Canceled).

43. The software product of claim 31 wherein the communication network uses wireless signals.

44. The software product of claim 31 wherein the communication network uses broadband wireless signals.
45. The software product of claim 31 wherein the performance information comprises a number of modems.
46. The software product of claim 31 wherein the performance information comprises forward error correction information.
47. The software product of claim 31 wherein the performance information comprises signal to noise ratio.
48. The software product of claim 31 wherein the performance information comprises number of bytes.
49. The software product of claim 31 wherein the performance information comprises speed of transmission.
50. The software product of claim 31 wherein the performance information comprises channel information for a plurality of channels.
51. The software product of claim 50 wherein the channels are upstream.
52. The software product of claim 50 wherein the channels are downstream.
53. The software product of claim 50 wherein the channel information comprises a state of one of the channels.
54. The software product of claim 50 wherein the channel information comprises a change in a state of one of the channels.

55. The software product of claim 50 wherein the channel information comprises a number of messages transmitted.

56. The software product of claim 50 wherein the channel information comprises a time in a state of one of the channels.

57. The software product of claim 31 wherein the instruction comprises a region of the communication network.

58. The software product of claim 31 wherein the instruction comprises an Internet Protocol address.

59. The software product of claim 31 wherein the instruction comprises a user identification.

60. The software product of claim 31 wherein the instruction comprises a time or date.

61. A performance management system for providing performance information of a communication network, the performance management system comprising:

a reporting system configured to generate and transmit a graphical overview of the communication network to a user system, receive an instruction to request the performance information for a selected region of the communication network from the user system, process the instruction to determine the performance information, generate a graphical format of the performance information, and transmit the graphical format of the performance information from the performance management system to the user system; and

a database system configured to store the performance information and the graphical format of the performance information.

62. The performance management system of claim 61 wherein the graphical format is a web page.
63. The performance management system of claim 61 wherein the graphical format is a report.
64. The performance management system of claim 61 wherein the graphical format is a screen.
65. The performance management system of claim 61 wherein the reporting system is configured to retrieve the performance information.
66. The performance management system of claim 65 wherein the reporting system is configured to retrieve the performance information from a probe device.
67. The performance management system of claim 66 wherein the reporting system is configured to generate and transmit a message to request performance information from the probe device and receive the performance information from the probe device.
68. The performance management system of claim 65 wherein the reporting system is configured to retrieve the performance information from the database system.
69. The performance management system of claim 61 wherein the reporting system is configured to calculate the performance information.
70. The performance management system of claim 61 wherein the reporting system is configured to monitor the performance information in the communication network.
71. (Canceled).

72. The performance management system of claim 61 wherein the communication network uses wireless signals.
73. The performance management system of claim 61 wherein the communication network uses broadband wireless signals.
74. The performance management system of claim 61 wherein the performance information comprises a number of modems.
75. The performance management system of claim 61 wherein the performance information comprises forward error correction information.
76. The performance management system of claim 61 wherein the performance information comprises signal to noise ratio.
77. The performance management system of claim 61 wherein the performance information comprises number of bytes.
78. The performance management system of claim 61 wherein the performance information comprises speed of transmission.
79. The performance management system of claim 61 wherein the performance information comprises channel information for a plurality of channels.
80. The performance management system of claim 79 wherein the channels are upstream.
81. The performance management system of claim 79 wherein the channels are downstream.

82. The performance management system of claim 79 wherein the channel information comprises a state of one of the channels.

83. The performance management system of claim 79 wherein the channel information comprises a change in a state of one of the channels.

84. The performance management system of claim 79 wherein the channel information comprises a number of messages transmitted.

85. The performance management system of claim 79 wherein the channel information comprises a time in a state of one of the channels.

86. The performance management system of claim 61 wherein the instruction comprises a region of the communication network.

87. The performance management system of claim 61 wherein the instruction comprises an Internet Protocol address.

88. The performance management system of claim 61 wherein the instruction comprises a user identification.

89. The performance management system of claim 61 wherein the instruction comprises a time or date.

90. A method of providing performance information of a communication network, the method comprising:

in a performance management system, generating and transmitting a graphical overview of the communication network to a user system;

receiving a first message for a region of the communication network from the user system into the performance management system;

in the performance management system, generating and transmitting a list of



types of the performance information for the requested region of the communication network to the user system;

receiving an instruction to request the performance information from the user system into the performance management system;

in the performance management system, processing the instruction to determine the performance information;

in the performance management system, generating a graphical format for the performance information; and

storing the graphical format of the performance information in a repository.

91. The method of claim 90 wherein the graphical format is a web page.

92. The method of claim 90 wherein the graphical format is a report.

93. The method of claim 90 wherein the graphical format is a screen.

94. The method of claim 90 wherein processing the instruction to determine the performance information comprises retrieving the performance information.

95. The method of claim 94 wherein retrieving the performance information is from a probe device.

96. The method of claim 95 wherein retrieving the performance information from the probe device comprises:

generating and transmitting a second message to request performance information from the probe device; and

receiving the performance information from the probe device.

97. The method of claim 94 wherein retrieving the performance information is from a memory in the performance management system.

98. The method of claim 90 wherein processing the instruction to determine the performance information comprises calculating the performance information.
99. The method of claim 90 further comprising monitoring the performance information in the communication network.
100. The method of claim 90 further comprising storing the performance information in memory of the performance management system.
101. The method of claim 90 wherein the communication network uses wireless signals.
102. The method of claim 90 wherein the communication network uses broadband wireless signals.
103. The method of claim 90 wherein the performance information comprises a number of modems.
104. The method of claim 90 wherein the performance information comprises forward error correction information.
105. The method of claim 90 wherein the performance information comprises signal to noise ratio.
106. The method of claim 90 wherein the performance information comprises number of bytes.
107. The method of claim 90 wherein the performance information comprises speed of transmission.

108. The method of claim 90 wherein the performance information comprises channel information for a plurality of channels.

109. The method of claim 108 wherein the channels are upstream.

110. The method of claim 108 wherein the channels are downstream.

111. The method of claim 108 wherein the channel information comprises a state of one of the channels.

112. The method of claim 108 wherein the channel information comprises a change in a state of one of the channels.

113. The method of claim 108 wherein the channel information comprises a number of messages transmitted.

114. The method of claim 108 wherein the channel information comprises a time in a state of one of the channels.

115. The method of claim 90 wherein the instruction comprises a region of the communication network.

116. The method of claim 90 wherein the instruction comprises an Internet Protocol address.

117. The method of claim 90 wherein the instruction comprises a user identification.

118. The method of claim 90 wherein the instruction comprises a time or date.

119. A software product for providing performance information of a communication network, the software product comprising:

performance management system software operational when executed by a processor to direct the processor to generate and transmit a graphical overview of the communication network to a user system, receive a first message for a region of the communication network from the user system, generate and transmit a list of types of the performance information for the requested region of the communication network to the user system, receive an instruction to request the performance information from the user system into the performance management system, process the instruction to determine the performance information, generate a graphical format for the performance information, and store the graphical format of the performance information in a repository; and

a software storage medium operational to store the performance management system software.

120. The software product of claim 119 wherein the graphical format is a web page.

121. The software product of claim 119 wherein the graphical format is a report.

122. The software product of claim 119 wherein the graphical format is a screen.

123. The software product of claim 119 wherein the performance management system software operational when executed by the processor to direct the processor to retrieve the performance information.

124. The software product of claim 123 wherein the performance management system software operational when executed by the processor to direct the processor to retrieve the performance information from a probe device.

125. The software product of claim 124 wherein the performance management system software operational when executed by the processor to direct the processor to generate

and transmit a second message to request performance information from the probe device and receive the performance information from the probe device.

126. The software product of claim 123 wherein the performance management system software operational when executed by the processor to direct the processor to retrieve the performance information from a memory in the performance management system.

127. The software product of claim 119 wherein the performance management system software operational when executed by the processor to direct the processor to calculate the performance information.

128. The software product of claim 119 wherein the performance management system software operational when executed by the processor to direct the processor to monitor the performance information in the communication network.

129. The software product of claim 119 wherein the performance management system software operational when executed by the processor to direct the processor to store the performance information in memory of the performance management system.

130. The software product of claim 119 wherein the communication network uses wireless signals.

131. The software product of claim 119 wherein the communication network uses broadband wireless signals.

132. The software product of claim 119 wherein the performance information comprises a number of modems.

133. The software product of claim 119 wherein the performance information comprises forward error correction information.

134. The software product of claim 119 wherein the performance information comprises signal to noise ratio.

135. The software product of claim 119 wherein the performance information comprises number of bytes.

136. The software product of claim 119 wherein the performance information comprises speed of transmission.

137. The software product of claim 119 wherein the performance information comprises channel information for a plurality of channels.

138. The software product of claim 137 wherein the channels are upstream.

139. The software product of claim 137 wherein the channels are downstream.

140. The software product of claim 137 wherein the channel information comprises a state of one of the channels.

141. The software product of claim 137 wherein the channel information comprises a change in a state of one of the channels.

142. The software product of claim 137 wherein the channel information comprises a number of messages transmitted.

143. The software product of claim 137 wherein the channel information comprises a time in a state of one of the channels.

144. The software product of claim 119 wherein the instruction comprises a region of the communication network.

145. The software product of claim 119 wherein the instruction comprises an Internet Protocol address.

146. The software product of claim 119 wherein the instruction comprises a user identification.

147. The software product of claim 119 wherein the instruction comprises a time or date.

148. A performance management system for providing performance information of a communication network, the performance management system comprising:

a reporting system configured to generate and transmit a graphical overview of the communication network to a user system, receive a first message for a region of the communication network from the user system, generate and transmit a list of types of the performance information for the requested region of the communication network to the user system, receive an instruction to request the performance information from the user system, process the instruction to determine the performance information, and generate a graphical format for the performance information; and

a database system configured to store the performance information and the graphical format for the performance information.

149. The performance management system of claim 148 wherein the graphical format is a web page.

150. The performance management system of claim 148 wherein the graphical format is a report.

151. The performance management system of claim 148 wherein the graphical format is a screen.

152. The performance management system of claim 148 wherein the reporting system is configured to retrieve the performance information.

153. The performance management system of claim 152 wherein the reporting system is configured to retrieve the performance information from a probe device.

154. The performance management system of claim 153 wherein the reporting system is configured to generate and transmit a second message to request performance information from the probe device and receive the performance information from the probe device.

155. The performance management system of claim 152 wherein the reporting system is configured to retrieve the performance information from a memory in the performance management system.

156. The performance management system of claim 148 wherein the reporting system is configured to calculate the performance information.

157. The performance management system of claim 148 wherein the reporting system is configured to monitor the performance information in the communication network.

158. The performance management system of claim 148 wherein the communication network uses wireless signals.

159. The performance management system of claim 148 wherein the communication network uses broadband wireless signals.

160. The performance management system of claim 148 wherein the performance information comprises a number of modems.



161. The performance management system of claim 148 wherein the performance information comprises forward error correction information.

162. The performance management system of claim 148 wherein the performance information comprises signal to noise ratio.

163. The performance management system of claim 148 wherein the performance information comprises number of bytes.

164. The performance management system of claim 148 wherein the performance information comprises speed of transmission.

165. The performance management system of claim 148 wherein the performance information comprises channel information for a plurality of channels.

166. The performance management system of claim 165 wherein the channels are upstream.

167. The performance management system of claim 165 wherein the channels are downstream.

168. The performance management system of claim 165 wherein the channel information comprises a state of one of the channels.

169. The performance management system of claim 165 wherein the channel information comprises a change in a state of one of the channels.

170. The performance management system of claim 165 wherein the channel information comprises a number of messages transmitted.

171. The performance management system of claim 165 wherein the channel information comprises a time in a state of one of the channels.

172. The performance management system of claim 148 wherein the instruction comprises a region of the communication network.

173. The performance management system of claim 148 wherein the instruction comprises an Internet Protocol address.

174. The performance management system of claim 148 wherein the instruction comprises a user identification.

175. The performance management system of claim 148 wherein the instruction comprises a time or date.

### **Evidence Appendix**

No other evidence has been submitted by the Applicant or entered by the Examiner.

### **Related Proceedings Appendix**

There are no prior or pending related appeals or interferences.